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CHOLERA.

TWO CLINICAL LECTURES

UPON

THE NATURE, TREATMENT, AND SYMPTOMS,

OF

SPASMODIC CHOLERA,

BY

 
J. F. V. BROUSSAIS.

DELIVERED DURING THE PREVALENCE OF THE DISEASE IN PARIS.

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P R E F A C E .

THE two following Lectures were translated nearly *verbatim* from the language of M. Broussais, in their clinical delivery at the hospital of the Val de Grace, during the continuance of the epidemic in Paris, by a medical gentleman ; who, in the expectation that the Cholera would obey the same law upon the American Continent as it observed in Europe, under similar circumstances, in succeeding to the Influenza or Epidemic Catarrh, transmitted them to this country for publication, with a view to their general dissemination. The name of Broussais is sufficiently attractive to the scientific world, as attached to several admirable productions, illustrative of the most celebrated doctrines in the French school of medicine. To the public, generally, who may not be so well aware of his eminence as a physician, it is sufficient to observe, that he stands in the highest rank as a Pathologist, and has deservedly won the respect of the savans of Europe.

It has evidently been the intention of the translator to preserve the sense of the Lecturer, and hence the nice propriety of language has been considered a secondary object ; but it may be confidently stated, that the matter has been carefully preserved, and even many of the descriptive phrases as scrupulously adhered to, as a translation would admit.

An eager desire, on the part of the undersigned, to add to the information of the Medical Profession on a topic so vitally important at this time, prompted him to submit these Lectures to the Public as early as they could be prepared for the press.

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New-York, June 23, 1832.

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The first part of the report deals with the general situation of the country and the progress of the work. It is followed by a detailed account of the various expeditions and the results obtained. The second part of the report is devoted to the study of the flora and fauna of the country. It contains a list of the plants and animals found, and a description of their habits and distribution. The third part of the report is a summary of the work done during the year, and a statement of the progress made towards the completion of the project.

The work done during the year has been very successful, and has resulted in the discovery of many new plants and animals. It has also enabled us to gain a better understanding of the habits and distribution of the various species found in the country.

The progress made towards the completion of the project is very satisfactory, and it is hoped that the results of the work will be published in the near future.

DR. BROUSSAIS' FIRST LECTURE

ON THE

CHOLERA MORBUS.

GENTLEMEN,

THE disease, the nature of which we are now to investigate, is called the CHOLERA MORBUS. The name comes from another malady, so called, because those affected with it vomit a great deal of bile. The denomination was given to it in the times when the humoral doctrines were in vogue; at which period, diseases were attributed to *humors* when their evacuation was most apparent, or seemed to explain the nature of the disease. Thus, in the sporadic cholera, there is always a large secretion of bile; and thence the name of Cholera Morbus, from the Greek word *cholos*, bile, and the Latin word *morbus*, disease; so that the etymological signification of the word is, disease of the bile. This name has been applied on account of the number of symptoms belonging to an epidemic which has long been known in the equatorial regions, and which now rages within our walls.

This epidemic has doubtless prevailed at several different epochs, and probably is the same as the frightful pestilence which made its appearance in the year 1348, and carried off nearly a third part of the existing population; and it has in effect a very great affinity to what is told us of the black pest. But whatever may have been its nature, it was forgotten in our region. We read, from time to time, numerous articles in the papers, upon the ravages which the cholera morbus had made at Calcutta and other cities of India or the Levant, but it was still nothing more than a matter of curiosity. The English, who have considerable establishments in the East Indies, had never introduced the disease into their own country, and the small number of French who have visited those places, never spread its contagion at home. Whether this was owing to the circumstance that the communications between these countries have always been by sea, to the kind of food taken during the voyage, or to the fresh winds which blow over the water, and thus destroy the causes of the malady whatever they may be, I cannot say; but certain it is, that the disease had never left the place of its origin.

The Russians first introduced the cholera into Europe, by means of their communications over land with Persia, India, and countries

of the east, where the English have settlements, the disease having followed their armies. They brought it to Warsaw, and thence it has spread over various parts of the continent. It has appeared in different districts of Germany, in the provinces bordering upon Turkey, in Hungria, and Austria; in short, it has been propagated to a great extent in the north and east of Europe, and has manifested the same violence as in the tropics. This circumstance constitutes an essential difference between the cholera and the yellow fever, which never appears, or at least, never prevails to much extent in cold climates. In fact, the yellow fever is supported by heat, and by emanations from low and marshy grounds; but the cholera needs no such aliment; it respects neither country nor season.

The cholera morbus, arriving in our latitude, manifested itself first in England, and hence it appears that an intervening sea cannot arrest its progress, though the distance, it is true, from the continent to England is very trifling in comparison with that to India. I only allude to the circumstances as important considerations in our researches, and not as tending to establish, with any certainty, the manner by which the disease may be propagated.

The malady was preceded in many of the cities in the north and east of Germany by a sort of convulsive catarrh, which was called *grip*;* the year following this scourge appeared in all the places which had been previously visited with the *grip*, and persons who had made accurate observations and calculations of its progress, predicted from the appearance of the *grip* here last year, that the cholera would follow it the next. In this hospital we certainly discovered the forerunners of this event, (not the *grip*, for I acknowledge that during the last year we had very few cases of the convulsive catarrh, and I hardly believed in the existence of the *grip*, so rare were its instances,) but we observed some weeks before the appearance of the cholera, a great susceptibility in the digestive organs, so that we were obliged to reduce the aliment of many of our convalescent patients, and to renounce some means of internal revulsions which we were employing in cases of catarrh and peripneumony. Some experiments which we made of the use of tartar emetic in cases of inflammation of the lungs, were attended with remarkable success in the winter; but we observed, all at once, that it had become impossible to introduce this medicine into the digestive canal of certain of our patients without producing the most disagreeable effects. Many threw up the tartar emetic and experienced violent convulsions of the stomach. In two cases, which I particularly remember, the pulse was scarcely perceptible for the space of sixteen days; the patients were in the same situation as those who are now affected with the cholera, except that the pulse was not quite extinct; they were in a state of extreme stupor; the eyes red; the extremities cold, and the pulse at times imperceptible; their evacuations and vomitings frequent. This malady, treated upon the system of antiphlogistics, yielded to the

* See Appendix (a).

medicine, but the patients were for a long time cold ; but I confess that this observation was not of sufficient importance to decide me upon following the same system in cases of the cholera when it appeared with such violence in this hospital at first. Some time after a patient was brought, whose pulse had nearly ceased ; he was bled profusely, and we then discovered that he had an inflammation of the lungs, which nothing would have led us to suspect when his pulse was nearly extinct. Here, then, are symptoms which seem to indicate an increased irritability of the organs of digestion. Under the influence of what causes, then, has this increased irritability taken place ? A question by no means easy to determine. Let us proceed to the development of the actual epidemic. It broke out all at once among the poorest and most miserable classes of the people in Paris, and those first attacked were carried to the Hotel Dieu ; three days after we had cases of it at the Val de Grace ; it had also made its appearance at the Gros Caillou, nearly at the same time as at the Hotel Dieu. The precise epoch of its appearance, was, I believe, the 26th of March : we had no case of it at this hospital, however, till the 29th.

Let us now recal what has been said of the manner in which it is propagated. The disease had scarcely any appearance of being contagious, since the persons who were first attacked, certainly had no communication with those who might have been in England ; at least, this was the most probable supposition. However this may be, I will proceed to lay before you whatever facts I am in possession of, regarding the manner of propagation. Doubtless the disease showed itself first in persons who had never been in contact with those affected by it. It is too strongly marked to have been brought in any vessel coming to France, for this would have immediately been discovered. Some person attacked with the cholera, arriving at Calais, or some other sea-port, would have communicated it to those about him. Nothing of the kind, however, is known to have happened. But, although those first seized did not appear to have taken the infection from any one else, it is a well established fact, that when the malady had once declared itself in a house, it almost always happened that a number of persons were attacked in the same house, and I know of no instance where it has been confined to a single individual under one roof ; I have no doubt there may be such instances, but I know many to the contrary ; and in general, upon being called to visit a patient seized with the cholera, I have noticed that several cases ensued the following two or three days. This fact gives rise to the suspicion that there is a species of infection by which the patient communicates the disease to those who have charge of him. But, on the other hand, the inmates of the same house may be regarded as exposed to the same influences, and thus contracting the disease independently of all contagion. This is possible ; but still cases of the cholera are known to occur in different stories, and different families living in the same house, with various modes and habits of life ; so that it would seem that in these houses there is some peculiar cause which multiplies its ravages.

We must, however, make a great allowance for the moral affections; those persons who are struck with terror at the sight of choleric patients, are doubtless very strongly predisposed to the disease. I will mention to you the example of a very distinguished person, an eminent foreigner, whose name, however, I am not at liberty to make public. This gentleman had traced upon the map the whole progress of the cholera; he conversed with his physician several times a week upon the route it had already taken, and was continually occupied in calculating the time when it would appear in such and such a place, and finally when it would reach France. The cholera having broken out here, "Behold," said he, "the disease is now at Paris; there is no doubt I shall feel its effects." He took pains to be informed every day of the number taken, and the number dead, but at first discovered no symptom of the disease in himself. He at length however experienced the diarrhœa which usually precedes the cholera, and though it was carefully treated from the first, nothing could arrest its progress. This is a case under my own eyes, for I was called to the patient by his attending physician. I could mention several similar cases. I found one yesterday of the same nature. A patient whom I had cured of an extremely obstinate inflammation of the stomach and bowels, was in great fear of the cholera. He went to pay a visit to one of his friends, who was attacked, but did not venture into the chamber, as he found the whole family in tears and deeply afflicted; he had hardly entered the house when he was seized with the cholera; and I think he will die this day. Thus it appears that the disease is propagated by the most extraordinary means.

From some circumstances, it would appear that the disease is carried in the air; but this supposition is contradicted by the fact, that the cholera thus regularly distributed over the same plain, attacks one village while it spares another; that it is not communicated by the inhabitants who are continually passing from one to the other; and that the same persons who had ventured with impunity into the midst of the sick, were attacked when the scourge at length arrived to their own place of residence. There is something so extraordinary in the manner in which the malady advances, that it merits the attention of physicians. After all the facts I have cited, I am in doubt if I ought to admit the idea of infection as it is generally understood. It is certainly impossible to allow that the disease is contagious, at least in the same way as the small pox or the itch; for this epidemic is not communicated by inoculation. Persons have inoculated themselves with the blood of choleric patients; others have even swallowed it; and others have impregnated their garments with it; some have had the courage to sleep in the same bed with the sick; and, in short, every experiment of the kind has been made, and the disease has in no instance been thus contracted. These experiments were doubtless made by men of courage; for, had timid persons been forcibly inoculated, I have no doubt that they would have taken the

disease. I am of opinion that courageous and devoted men could alone have made these experiments with impunity ; a circumstance well worthy of notice. The author of a recent work on the subject, speaks of a choleric atmosphere which is confined to a city, a village, or to a single house even : but the existence of this atmosphere cannot be demonstrated. It is certain, however, that there exists a strong predisposition to cholera, and it is to this point that our researches must be directed at present.

It is proved by the reports of French physicians, who have visited other countries to study the nature of cholera, that every remarkable derangement of the gastric system may be followed by this malady when it prevails in the country. There are instances, however, of persons being seized with it, who were in good health, and with no other previous symptoms than those of the disease itself ; but these cases are very rare. The malady is generally first announced by a slight relax, unattended by any disagreeable symptoms ; when this ordinary relax already exists, that produced by the cholera discovers itself in a manner not to be mistaken. Thus, the first predisposing causes are *diarrhœa* and *indigestion*, and chronic irritations of the gastric system, which may have existed for a longer or shorter period ; but, above all, a disposition to *diarrhœa*. Another predisposition to cholera is *terror*, one of the most powerful causes undoubtedly. I have already mentioned one of the numerous instances I have met with of this. *Intoxication*. Men who were in good health, having been intoxicated, have been seized the day following with cholera, though they had experienced no previous indigestion : with the last exception, this case would be ranked among the first class of predisposing causes. Another predisposition is the *intercourse between the two sexes*. One of my colleagues, a professor in this institution, has mentioned to me numerous examples of students who were seized with the cholera after having visited a brothel. And those who have studied the disease at Warsaw, in Russia, and other places, have observed the same fact. *Convalescence* is another predisposing cause ; persons convalescent from disorders pertaining to the gastric system, or on the point of becoming convalescent, are always exposed to the cholera : but we have not observed that this was one of the most powerful predispositions, or, at least, we have been able to elude it, by subjecting our patients to a severe regimen. I think, therefore, that such persons are not in danger unless they commit some excess which causes indigestion ; a thing, indeed, which happens too often. To these predispositions, I will add that of patients who have for a long time been suffering from some severe malady. I am led to this conclusion, because numbers of my old patients who had been completely cured of intermittent fevers or of inflammation of the bowels, have been returned to me now. I have taken particular pains to ascertain with what diseases they had been afflicted before, and ascertained almost uniformly that they were affections of the gastric system. I have also remarked, that numerous persons who had been attached to the army

of the north, having passed some time in the hospitals, where they took sulphate of quinine, some of them in very large doses, easily became victims to the cholera : but I have not been able to ascertain whether these cases were attended with the previous diarrhœa or with accidental indigestions. These are the principal predisposing causes. I will add, that persons in apparently good health, and who had experienced none of these predisposing causes, having been attacked suddenly, I have endeavoured to investigate the matter thoroughly, without contenting myself with the first details given me by the patients. I observed that they voided worms, and I discovered a great quantity in those who died. I believe we have had seven or eight cases of those attacked by cholera when they believed themselves perfectly well ; but I cannot consider a person, who is troubled with worms, as enjoying good health.

Manner of attack. I here divide the malady into primary and secondary. There are, as you know, three great sections of the digestive canal ; the upper consisting of the stomach, which contains the duodenum ; the middle containing the small intestines ; and the lower section, in which are found the colon, the cœcum, and the rectum. You know that all inflammations of the intestines predominate sometimes in one, sometimes in another of these sections. The cholera, then, is not exempted from these laws : we have observed the commencement of the malady in one or the other of these three sections of the digestive canal. I shall speak first of the attack in the lower section, these being the most frequent. The patients experience slight attacks of colic, or sometimes nothing more than a slight pain in the abdomen which precedes an evacuation : many are seized all at once with an inclination to go to the privy, and there discharges are made promptly and without pain. The canal empties itself at once ; and some persons, habitually constipated, are much pleased to find their passage open. As soon as the intestine becomes empty, the characteristic results of the cholera take place. The matter voided has a milky appearance, and somewhat resembles a decoction of rice or oatmeal : it is often tinged with bile, and I have constantly noticed that it contains particles of mucus. After this, all the symptoms and characteristics peculiar to the malady which I have just described, make their appearance. The patients are seized with cramp ; the extremities become cold ; nausea succeeds, and is rapidly followed by vomiting, as we recently observed in the case of a patient, who, though he experienced only a slight nausea at the commencement of our visit, vomited abundantly before we left him. I proceed now to the attacks of the disease in the middle section, and the small intestines. The patients experience flatulence, violent workings and heat in the intestines for several days ; they have also slight colic and a sort of uneasiness which they find it difficult to describe. They, however, preserve their appetite. Sooner or later the diarrhœa ensues, and the symptoms already noticed as occurring in the lower section, manifest themselves here. The attack of the

malady commences least frequently in the upper section : in this case the patients are constipated ; they experience some nausea and irritation of the stomach ; they are forced to vomit, which they do at first without pain, unless there have been previous predispositions ; after this vomiting becomes painful ; cramp takes place in the upper extremities ; the throat becomes dry, hot, and sore ; the muscles of the jaw are also affected with cramp ; and after this the other symptoms of cholera appear.

There is still another way in which the disease attacks the patient ; this is by the nervous system. In this case there is no derangement of the digestive canal : the persons thus seized, experience a dizziness and fall senseless.* Many soldiers have been attacked in this way ; and there have been cases of it also among the citizens. Persons thus taken with the cholera, fall as if struck by lightning, and in numerous instances have died immediately. A question here arises. Does the disease, in these cases, really commence in the nervous system ? Was there not previously a general irritation in the digestive canal, which produced a reaction on the nervous system ? I am inclined to this last opinion. It is certain, at any rate, that numbers who are seized at first with dizziness, sudden loss of strength, relaxation of the muscles, and fall, recovering from these attacks, are taken with vomiting, the first sign of the malady, and then experience severe colic. These are the facts I have been able to gather respecting the manner in which the disease first declares itself.

When the malady is secondary, it appears towards the close of a violent inflammation, or even in a convalescent person. In a patient suffering from some acute disease, the cholera commences ordinarily by diarrhœa, and after that the other symptoms appear. The pulse is feeble, and the remains of fever, which would probably have disappeared in two or three days, are at once extinct ; the patient becomes cold, and the symptoms of cholera declare themselves in a manner too evident to be mistaken. Convalescent persons are usually attacked in the lower section ; and, by looseness of the bowels, and having no fever, slowness of the pulse and coldness of the extremities take place the sooner. Inflammatory diseases of the lungs seem to be a preservative ; and it has been remarked, that persons troubled with asthma escape the cholera : this must not, however, be entirely trusted in, as there are phthisical patients who have a sort of diarrhœa, and if they had this predisposition in the time of cholera, they would doubtless be attacked. Thus it appears, that persons suffering from diseases of the stomach or bowels, are most strongly predisposed to the cholera.

Symptoms. The better to explain the symptoms and characteristics of this malady, I shall make the following divisions of them : 1st, Those which come to our knowledge by the information of the patients themselves ; 2d, Those inferred from the exterior aspect of the patients ; 3d, Those resulting from the nature of the evacua-

See Appendix (b).

tions. First series—Those patients who are able to describe their condition, give us an accurate detail of what passes within them. They experience an inversion or upturning of the lower part of the abdomen, with violent heat and burning concentrated near the *epigastrium*. Those who are physicians, say that they feel all their blood rushing to the interior of the abdomen: such are their expressions: others imagine that they feel electric sparks, which occasion much pain, and which are followed by uncommon heat; then comes an extreme heaviness, with a weakness of the muscles, so that the patients cannot move. With the exception of complete apoplexy, there is no disease which renders the body so heavy and so lifeless as the cholera; the patients have no power of motion; they seem to be a mass of lead or stone; they can only stir the feet and hands, but cannot raise the trunk. This is easily conceived, for the principal point of irritation is in the digestive canal, and must react on the spinal marrow and muscles of the body. Their discharges are not very painful, for they are not accompanied by *tenesmus* or desire of going to stool, as in cases of ordinary dysentery, but are made with ease, and almost without the volition of the patient. The colics exist, nevertheless, but do not seem to occasion the discharges which sometimes take place even when the colic is not felt. The discharges and colic are generally accompanied by cramp. These cramps are always very painful; and it is these which especially exhaust the patients, and are by them the most dreaded. The pain is manifested by the shrieks of the sufferer. The cramps do not effect the members alone; they also manifest themselves in the muscles of the back, which are placed along the vertebral column. The patient always feels a considerable irritation in the region of the stomach and the *epigastrium*, which is, perhaps, felt more than the colics; it oppresses the patient, and prevents respiration; and he seeks to be relieved from it by placing a cushion under him, so as to make the breast prominent. A strong contraction appears in the face. Vomiting gives relief, and many of the patients desire and provoke it. The vomitings go on, continually increasing, with compression of the *epigastrium*, and difficulty of breathing; and, with these symptoms, come cramps in the limbs and jaws, and sometimes in the muscles of the eyes. The knowledge of most of these symptoms is due to the declarations of the patients themselves. Let us proceed now to the symptoms entirely exterior. You observe, in the first place, signs which the patients do not speak of. The muscles are strongly marked under the skin; the eyes are hollow, dry, and sunken; after some hours, the consistence of the eyeball seems to be dissolved; and one would say the eyes were turned inward by means of a thread. The aspect of the patient is hideous; the face very soon loses its fulness, and is contracted in a manner peculiar to these affections: but what causes the greatest astonishment, is the livid hue which spreads itself over the countenance as the disease advances. The extremities

are cold ; the tongue is usually pale, chill, broad, and flat ; the breath cold, and the pulse feeble ; the words are rather breathed than pronounced. The patient remains motionless on the back ; if you force them to lay upon the side, they cannot continue so long, but beg to be laid on their back, so that the breast may be raised. While the body thus remains still, they move the feet and hands, uncover the breast, complain of a fire within, and tear off the poultices and other warm applications placed on the stomach ; they turn from one side to the other, but are not able to rise up. The colour becomes darker and darker, and is soon livid. It varies, however, according to the natural complexion of the patient. Dark complexions become black or bluish ; but those which are more transparent turn yellow, taking the colour of bad gilding. This is followed by cessation of the pulse, which I shall call asphyxy. The pulse grows weak rapidly, and sometimes disappears in three hours, or even less. As soon as the pulse begins to grow feeble, the patient falls into the heaviness I have referred to : there are cases, however, in which he still preserves his strength when the pulse is extinct, and is even able to raise himself up, and go from one place to another ; but this strength is soon lost, and the unhappy person falls powerless. After the cessation of the pulse, the black hue manifests itself with various rapidity, sometimes at the end of two or three hours, sometimes even in less ; this depends upon the promptitude with which circulation ceases. When a patient, thus affected, is examined with a stethoscope, a slight tremor is perceived similar to that in a dying person, or a pregnant woman. These are the characteristics by which this affection is discovered. When the patient throws up nothing but the aliment he has taken, this vomiting cannot be said to be caused by cholera ; neither is the voiding of fecal matter any sign of it ; but when these symptoms are followed by that kind of matter I mentioned before, there can be no doubt of the existence of cholera, whatever pains the patients may experience beside. I insist upon this point. A more fetid smell arises from this matter toward the last, than at the commencement of the malady. The matter changes its character during the progress of the disease : it grows thick when the sickness is long continued ; but is, at first, extremely thin. A noise is heard in the intestines, and the matter, tinged with bile, is rapidly voided. In some cases, this appearance of bile continues to the last. It is important to pay attention to this circumstance, in order not to be deceived. The cholera may be always recognised by the appearance of whitish gelatinous particles in the evacuations.* Attention must be paid rather to the affections than the pains, for nothing is more variable generally and in particular cases, than the sensibility of our interior organs. There are persons who suffer much from the slightest inflammation ; others undergo severe diseases without suffering. Among those attacked with cholera, some pass through all the different stages without pain ; others are agitated, and suffer in the limbs, or have very dis-

tressing cramps. The pain of the cramps varies according to the sensibility of the individual; some are attacked without moving a muscle; others utter horrible shrieks. Hence the importance of attending to the fundamental characteristics of the disease; and these cannot be inferred from the sensibility of the patient. Slowness of circulation, extinction of the pulse, coldness of the extremities, livid colour of the face, are the characteristics which it is impossible to mistake, and are the symptoms upon which we must fix our attention. When called to a patient, if you find his evacuations white, and a diminished circulation, be sure the cholera has commenced. This is the object of my first lecture. In the second, I shall occupy myself with the *progress* and *treatment* of the malady.

DR. BROUSSAIS' SECOND LECTURE

ON THE

CHOLERA MORBUS.

GENTLEMEN,

In the lecture of yesterday, I imparted to you some ideas, which I had collected, upon the cholera morbus. I shall recal, in a few words, the most important parts of that lecture.

We have seen that the cholera is probably a very ancient malady, since the name of sporadic cholera has been given to it, although it differs greatly from that disease in its character of an epidemic; for the sporadic cholera is scarcely ever developed, except in the summer, under the influence of irritating causes very easily averted, and is neither propagated by infection, nor contagion. On the other hand the cholera morbus is certainly propagated by a kind of infection which it is difficult to characterise. Still it is proved to exist, as I showed you in my first lecture, and we are forced to admit it. I mentioned next the predispositions to cholera, which reduce themselves to an uncommon irritability, or a morbid irritation of the digestive canal. I also pointed out to you the determining causes, which are, all kinds of violent stimuli that cause any considerable derangement in the act of digestion. I then directed your attention to the manner in which the disease commences its attacks. You undoubtedly remarked that there was, almost always, as the patients themselves avowed, some disorder of the digestive canal; but that the malady sometimes commences in the nervous system by loss of the power of motion, or of the intellectual faculties. I added, however, that I was by no means convinced that those patients, in whom the disease made its appearance under the latter form, had not already experienced some derangement of the digestive canal: I was therefore obliged to leave this point undecided. I next showed how the attacks commenced in the three principal sections of the digestive canal. There are, then, four different ways in which the disease commences; by the three principal sections of the digestive canal, or by the nervous system; which last, I am of opinion, may be the effect of some previous but undiscovered affection of the digestive canal. After this, we examined the characteristic symptoms of the malady. That you might the better remember them, and to avoid all mistake, I classed them in the following order: 1st. The symptoms, which came to our

knowledge by the declaration of the patient of what he has perceived in himself; for this malady always commences by some derangement, and these are the affections of which the patient is able to give an account. 2d. The symptoms discovered upon examining the body of the patient. 3d. The nature of the evacuations. I fixed your attention with care upon this point, because it is of great importance in recognising the disease.

We will now proceed to the question, if in case the cholera be arrested in its earliest stages by a proper and well directed medical treatment, this can be considered according to the rules of good logic to constitute a particular disease in every case; I am of opinion it cannot be, and these are my reasons. For example, if a man is running to throw himself into a river, and is met by a friend who removes the cause of his sorrow, would you say that this man has been pulled out of the river? Certainly not. Still it is not the less true that he would have been drowned, but for the intervention of his friend. This is precisely the case of those in whom the progress of the cholera has been arrested; they were hurrying on to death, and you have stopped them. Still their progress had already commenced. We must consider, then, 1st. The progress of these affections; 2d. The examination after death; 3d. The prognostics; 4th. The treatment. These will form the subject of the present lecture.

Progress of the malady. It is difficult to discover any absolute, independent, and unvarying progress in the cholera. It is worthy of remark, in the first place, that the spontaneous cholera is always the most dangerous. M. Gravier, physician of the King, at Pondicherry, having observed the disease at Calcutta, was the first person educated at the physiological school, who applied the principles of this school to the investigation of the cholera. M. Gravier lamented the bad result of a treatment by stimuli, composed of pepper, brandy, cinnamon, musk, and ginger, applied in such cases; and he proved that a greater number of cures could be effected by keeping the patients upon rice-water, after having bled them. He could obtain neither leeches, nor ice, nor any of the means which you have seen employed here; and besides this, the malady discovered itself in thousands of individuals, so that he was only able to employ two or three general means against this devastating scourge. The same embarrassment recurs in every instance of a great epidemic. It is evident, then, that by this anti-phlogistic treatment, of which the basis was copious bleeding, and by adopting rice-water for the beverage instead of brandy and other stimulating drinks, M. Gravier cured more than half his patients, while scarcely one per cent was saved by the method adopted before. Still M. Gravier has confessed, with an extremely laudable candor, that bad treatment was better than to abandon the disease to itself; for there was no case on record of the cholera, thus abandoned, terminating otherwise than fatally. This fact was noticed in a communication by M. Gravier, on the subject, which was showed me in manuscript, for my opinion,

in 1823 or 1824 ; I forget the precise epoch, but the article will be found in the archives of the Faculty of Medicine. M. Gravier has, since then, sent me a great number of notices upon the cholera, from which an article was formed, which appeared in the *Annals of Physiological Medicine*, for the year 1827. The observation of M. Gravier, is conformable to our experience ; this terrible malady, when abandoned to itself, is uniformly mortal, while it is curable in different degrees, according to the treatment, and the conditions by which it may be modified. There are three different ways, then, in which the disease may be treated ; 1st. By pure stimulus ; 2d. By a stimulating and debilitating treatment, employed simultaneously or alternately ; 3d. The physiological treatment. The disease, abandoned to itself, is always fatal, and appears with the following symptoms : When the affection has discovered its peculiar characteristics, the patients have continual vomitings and evacuations ; the pulse grows feeble by degrees, and finally disappears ; as soon as the pulse has become extinct, the blue colour appears, proceeding from the extremities to the centre ; the evacuations cease, and the irritability disappears throughout ; the intellectual faculties, which had been preserved in a wonderful manner for a long time, and in spite of the sinking of the patient, are now lost. Of these unhappy persons, some die in a sort of agony of short duration, which is announced by a strange respiration, which I should rather term a laborious heaving of the stomach ; others expire suddenly in endeavouring to move themselves, or in the moment of being placed upon a seat, or raised up to change the position. Such is the termination of the malady. As to its duration, the term varies a little, but not much, for the disease is circumscribed within very narrow limits : it is scarcely ever known to last longer than three days when left to itself ; and often terminates fatally in two or three hours ; that is to say, the phenomena of vomiting, evacuations, feebleness of the pulse, coldness of the extremities, blackness, and agony, advance sometimes with great rapidity, sometimes with a degree of slowness, which is generally confined to the space of three days. The disease is modified in the first place by pure stimuli. I mention this method first, because it has been adopted in India, at Calcutta, and in the English settlements generally, for the simple reason that Brown's system had absorbed the whole English practice, and the physicians who came from England, were necessarily obliged to apply their theory to the patients in every possible climate ; still this method was more injurious in the tropics than elsewhere.* This method, purely stimulative, consists in administering spirituous liquors, such as brandy, rum, gin, not only pure, but impregnated, and saturated with aromatics and irritating substances, such as cinnamon, nutmegs, cloves, &c. Madeira wine is every where employed, having been brought by land, and being extremely powerful, as the chemists know, since its fermentation is not finished ; and there remains a considerable quantity of sugar : besides this, it is found in every part of the world. Some narcotics are also

* See Appendix (d).

used ; but the Maderia wine and brandy are always impregnated with aromatic substance, such as musk, pepper, ginger, and cloves. The mortality under the influence of this treatment, is frightful. There are, however, a few instances of a happy termination of the malady ; such are the resources of human nature, that the patient sometimes owes his safety to the very circumstance which seemed about to put an end to his life, and this by means of revulsions. It must be confessed, that our information respecting the phenomenon of revulsions, is much too limited ; because these revulsions depend upon the sympathies or co-operation which exist between the organs ; and this study has been abandoned entirely in favour of experiment. In this there is nothing astonishing ; it is natural to the human mind. Whenever any new method comes greatly in vogue, it is easily seized upon by men of science and of high reputation, and they must be satiated with it before they can perceive the inconveniences which results from it. Hence great numbers became victims to the system of Brown, before its dangers were discovered.

It is then proved that those who are treated by excessive stimuli may experience a favorable crisis of their disease, and this crisis is brought about by sweating, and it is particularly that kind of sweating which is induced by wine, punch, spirituous liquors, and brandy, which saves the life of the patient.

These are the advantages of this treatment. I shall now mention its inconveniences. The first is, that this method, compared with another which I shall speak of, is infinitely more dangerous, since it is attended with a much greater number of deaths. Another is, that those who are cured by the stimulating method, still preserve a morbid state of the digestive canal, and even of the whole system, which continues through the rest of their life.

The eclectic or mixed method of treatment, is advised by erudite, but timid persons, and is adopted by the mass of physicians, because their ideas upon the nature of the disease are not well determined. It consists in first bleeding the patients, and after that, in provoking either upwards by ipecacuanha or tartar emetic, or downwards by calomel, or other purgatives ; and in endeavouring to produce perspiration by means of sudorifics, baths externally applied, or heat applied internally. Narcotics are then administered for the pain or movement of the nerves ; but they are given before the inflammatory state has been sufficiently reduced. This method is attended with more favorable results than the former ; and it has prevailed in Paris among those physicians who were not educated at the physiological school, and who have not been accustomed, as we have in this school, to compare continually the effect of the modifications in the different maladies with the progress of the symptoms, and the results obtained from examination after death. I shall not enter into any farther details of this method ; it is much employed, and it is sufficient to refer to it. I ought to remark, however, that its results are more favorable than those of the first method. I hardly know, indeed, if a

comparison can be drawn between the two ; for the results of the first have been attended with hardly any success ; none, indeed, unless in comparison with the ravages of the cholera when left to itself, which is known to be almost uniformly fatal. It is better, in effect, to expose the patient to extreme stimulus, than to leave him to perish ; but it is better still to weaken him by bleeding before resorting to stimulus.

The physiological method, which consists in the use of emollients and relaxants, and of stimulus applied externally, in proportion to the susceptibility of the patient, appears to us preferable to the others ; and I shall proceed to describe its rules of application. I wish you to take particular notice here, that I am not speaking of the treatment of the disease, but only of its progress. I simply wish to explain to you, that there is a great variety in the progress of the malady ; that it is subjected to modifying circumstances ; that, when abandoned to itself, it has not the same result as when treated medically ; and that its result differs according to the manner in which it is treated. I wish to fix your attention upon these points without going into any further details ; for you have all the same opportunity for examining the disease as myself.

Examination of the body after death. When these attacks prove fatal to the patient, it is very natural to open the body in order to discover the first, or, at least, the secondary cause of the disease, which has extinguished life. I make a distinction here between the examination of those who were not subjected to any treatment, and those who were treated in a manner to delay death a little without finally preventing it. When we examined the bodies of persons who died after having exhibited symptoms of the cholera morbus, it was necessary to take account of their former maladies and the traces they had left upon the organs. We have here, as in all the hospitals, many instances of patients who are brought in alive, but who die before they can be subjected to any treatment. These patients are black when first presented to us—generally completely black. The muscles are very prominent in the body after death, and in a state of contraction, like those of a wrestler who is making an effort to rise from the ground ; and they have been thus described with great accuracy in a work just published. On opening the body, we find in the brain a considerable injection in the meninges or membrane. The injection of the cerebral substance is not generally in proportion to that of the meninges ; that is to say, the membranes which envelope the brain. This is nearly all that is worthy of remark in the brain ; there is almost always a little wateriness in the cavity of this membrane ; but, in general, this is not abundant, but, on the contrary, a very considerable quantity is found in those patients who have been treated for a certain time, and who have been bled. We remark very disagreeable symptoms in the throat also, when these congestions of the blood in the head are formed ; there is a stiffness, dryness, and sometimes a choking up of the ganglions ; otherwise there is no in-

creased softness, nor dissolution of the mucous membrane of the mouth, or of the œsophagus. The stomach is ordinarily very much disordered, sometimes black, sometimes brown, and sometimes reddish. Its vessels, extremely developed, exhibit ramifications of a black colour; and between these vessels the mucous membrane is softened, and almost dissolved. Meanwhile, it is always necessary to take notice of the previous diseases. We have noticed that habitual drinkers, or those who have exposed the stomach to any habitual excess, exhibit frequently a softness and even a very considerable destruction of the mucous membrane; and this alteration does not exist in persons of sober habits. The duodenum is rarely disordered to any great degree, unless the patient had been previously affected with complaints of the stomach and bowels. The small intestines are very much filled up; but here occurs a very remarkable circumstance; for we must make our distinctions, and speak of the symptoms in reference to the appearance of the body after death. Those patients who had very abundant evacuations, (and these take place to a frightful degree both by vomiting, and going to stool, in those who have no medical treatment, so that their strength is exhausted and life passes away,) those patients exhibit the redness of the mucous membrane of the intestines less apparently; it exists, however, from the commencement to the end of the canal, but not very distinct. An immense quantity of the liquid which is evacuated, is found in the interior of the digestive canal. There is an entire analogy between the matter vomited and voided downwards, after the fecal matter and bile have passed away, and this liquid which is found in the cavities of the digestive canal. We have had an opportunity of examining patients in whom these secretions produced by cholera had not been repressed by the efforts of art, in consequence of the physicians not having discovered, during the first moments of the disease, the malignity of certain evacuations, which might be mistaken from slight accidents or from derangement of the gastric system; these patients arrived here in the last extremities before they could receive any treatment. We were much surprised at these examinations, to discover a sort of mucous formation, and a large quantity of fluid resembling a fuliginous solution which filled the intestines. The mucous membrane appeared a little paler than usual, a slight redness merely pervading its whole extent. From the upper orifice of the stomach, down to the anus, no part discovered this redness; and we have only been able to ascertain that when the patient had experienced a previous irritation of the digestive canal, the stomach and bowels had the appearance of greater redness and alteration. The bladder was contracted and gathered into the pubis, a circumstance not at all surprising, since the abundance of the intestinal evacuations must, of necessity, have exhausted the sources of urine: but there was no appearance of inflammation.

Those subjects in whom the malady had been treated in such a manner as to prolong it without final success, exhibited appearances a little different. These affections commonly cease, or, at least, are modified when the patients are subjected to medical treatment. When they are well treated, this cessation is followed by their cure, but when treated less advantageously, they are sometimes cured, sometimes not. When they are not cured, it is found that the inflammation is more strongly marked. The redness, which was a slightly pale, and resembled in some degree the colour of the flower called *hortensia*, is here very bright: it is scarlet, or even bordering upon black; there are portions even in the digestive canal, which appears gangrenous. Thus, when the disease made its first attacks in the gastric region, a frightful derangement is found in the stomach, the mucous membrane of this organ appearing entirely destroyed and very black. When the disease commenced in the small intestines, the mucous membrane is sometimes gangrenous; in other patients it is completely destroyed. The liquid contained in the digestive canal, is less fluid, less white, less opaque, adheres to the mucous membrane, and approaches the condition of a false membrane. The intestines are less humid, less black, and more difficult to separate from each other. The glands of Peyer and Brown, somewhat more swollen, present the appearances of ileo colic.

In a word the ordinary symptoms of disease of the stomach and bowels appear. The brain is crowded not with blood, because the patients have often lost much by bleeding. It is more humid, and fewer drops of blood are discovered when its substance is cut: the ventricles are more moist, and sometimes abundantly supplied with watery matter. We have never found it inflamed, nor have we ever remarked any arachnitis, properly so called. We have seen congestions of blood and watery effusions, but never distinct inflammation. As to the heart, we found it in the first subjects, choaked up with thick blood, its partitions thickened, and upon being cut, blood, less coagulated than we expected, followed the knife in drops, and even in a stream; but there was no marked inflammation in the internal membranes of the heart and of the large vessels. When the patients lived for some time after the secretions of the digestive canal had ceased to be so abundant, the bladder was not so much contracted as in the case of those who had died during the evacuations. It was entirely filled with urine, without inflammation, a circumstance which throws much light upon the cause of the cessation of urine, which must be attributed to the deviation of the watery fluids which go to the intestinal surface instead of following their course as in the healthy condition. The muscles are sticky, dry, and emaciated. The lungs present no remarkable appearance. I repeat here, we must give attention to the previous diseases. What are we to conclude from all this? That the

cholera morbus is essentially an inflammatory affection. This is my conclusion. This inflammatory affection attacks the whole extent of the digestive canal, from the throat to the anus. Whenever it is intense, when it is very red, as it commonly is when the malady has lasted a long time and the evacuations have ceased, when it is less bright in colour, as is the case when death takes place in the midst of abundant evacuations, it is always general, and there is no part of the canal which is exempt from it. I insist upon this proposition, which is in opposition to many reports upon the cholera. I insist upon it, because it is true, and serves to verify many important points. Some persons maintain that there is no inflammation in the digestive canal, and they rest their position on the fact, that some patients have died during abundant evacuations, in which case the external membrane of the digestive canal is not scarlet; but the inflammation does not the less exist, and the abundance of the secretions and evacuations explain sufficiently its want of redness. Do not conclude from this, however, that I only consider the disease in relation to inflammation. I set aside here that unknown cause referred to in my first lecture, and which I compare with that of the small pox, which is equally unknown; what we see in the small pox, as in the cholera, is the inflammation which these maladies produce. Thus, in a word, the cholera morbus, as we believe, is a general inflammation of the internal membrane of the digestive canal, of which the first determining cause is unknown, while the predominating and subsequent causes may be comprehended. And there is an advantage in this; for if the first causes cannot be discovered, we can, at least, distinguish the secondary causes, a circumstance of great importance, and which ensues us much success.

Prognostics. These are 1st, The previous health of the patient. Persons in good health are easily cured when the disease is treated in time. The age of the patient—Young persons are cured more easily than the aged. The sex—Upon this point, it has been impossible to make any positive or satisfactory comparisons. The moral condition—I have already made some remarks on this point, and all our observations tend to confirm them. The prognostics depend, 2dly, upon the nature of the commencement of the disease. If it begin in a downward direction, by a gentle diarrhœa, there is time to treat it, and arrest its progress. And at this moment a vast number of these affections are stopped at their commencement by the skill of the physicians in Paris. The disease, when thus arrested, is called cholérine. Thus, some trifling consolation is offered to the public. The physician says to the patient, “you have the cholérine; you have a slight diarrhœa, but you have not the cholera.” And when it is checked he does not say, “you have had the cholera.” Thus he avoids terrifying the patients, who are satisfied without being made to understand that they were victims devoted to the cholera, had not the necessary succour been lavished upon them. When the disease attacks

the middle parts, the result is the same. If it be confined to a slight relax and tension, it is easily checked. When the symptoms predominate in the upper parts, and the diarrhœa has ceased, I venture the opinion, that the disease is more easily cured. When, on the contrary, it has lasted a long time, and the cramps, which are a proof that the inflammation of the intestines has extended to the spinal marrow, have commenced, when the patients are seized with great anxiety, agitation, and uneasiness through the whole extent of the abdomen, they are in much greater danger. When these symptoms have disappeared, and there remains nothing more than vomiting and distress of mind, there is much more hope of recovery. All the symptoms have not the same importance. The congestions of the brain scarcely ever manifest themselves during the violence of the disease. The patients may appear to be in such a state of sinking and exhaustion as to cause the belief that there is a congestion of the brain ; but if you excite them, if you speak to them, they answer very well : so that, if you have let fall any indiscreet expressions, you may have cause to repent it when you see that the patients have the full use of their faculties. On the contrary, when the symptoms of the attack have ceased, and the moment when you flatter yourself that the cure is about to commence, a very severe congestion of the brain may take place, unless measures are adopted to arrest its progress. When the malady is prolonged, when the patient is revived from the state of asphyxia, and the dark colour has disappeared, the tongue red, and the skin hot, the disease has changed its nature ; the patients exhibit all the symptoms of the diseases of the stomach and bowels, which we are called to treat every day. We here make this distinction : it is always necessary in the treatment we adopt, to have reference to the modifications of the disease. When the patient has been revived from a state of stupor, asphyxia, and blackness, by means of stimulus, this disease of the stomach which ensues, is severe, and resolves itself into typhus. At this very moment, indeed, it is said that the typhus reigns in Paris with the cholera, and the same thing is repeated upon the subject that was said in Germany, Poland, Russia, and the Levant. But if you wish to appreciate justly this pretended typhus, this typhoid fever which succeeds the cholera, and of which the most dangerous symptoms have been suppressed, you will perceive that this same fever should be subjected to the same treatment as the ordinary complaints of the stomach and bowels. In our hospitals, for instance, there is no typhus ; there is nothing else than slight complaints of the stomach and bowels, which pass off in three or four days, and the patients call for food. In those halls, on the contrary, where the patients have been revived by means of stimulants, such as punch and brandy, they perish in great numbers, after having been carried into an other hall as cured of the cholera. They are reported in the bulletin as cured of cholera, and placed in a separate room as affected with typhoid fever, and no-

thing farther is said about them ; the attention of the physicians is given to the new subjects of cholera who arrive, and the first are forgotten. I now pass to the treatment which, for the sake of perspicuity I divide in the following manner : *The Ancient treatment*, or treatment of the sporadic cholera—*Treatment after the manner of Brown*—*Mitigated treatment*, or eclectic, or vacillating treatment—Finally, *Physiological treatment*, such as we employ here. These are the four divisions we have made.

Let us examine first the *ancient treatment*. In all the standard treatises the following receipts, are found. We are directed to administer abundantly to the patient a decoction which favours vomiting, that the bile may pass off ; and after that, when every thing that was wrong in the digestive canal is evacuated, the cramps and irritation must be allayed by narcotics. This treatment has saved some individuals, but has not been so successful as to be generally adopted ; besides this, the practice of the middle ages has fallen into disrepute, and *Brownism* has taken its place, particularly in those countries where the cholera prevails, for the English physicians have carried there the ideas of Brown.

Brownian treatment. This consists in the use of stimulus. I have little to say on this head, having already referred to it before. I shall only add, that it cures very few patients. I will not say it kills them, because, when the cholera is left to itself, no one escapes ; and this treatment, in a vast number of cases, is succeeded by typhus or disease of the stomach and bowels, which extends to a degree of typhus. I do not wish to accuse any one, but only to do justice to all. As to the means of treatment, I have pointed them out.

The *mitigated treatment* consists of the following means. The physician seeks to restore heat to the patient at the period of asphyxia, or if you wish to go back to the diarrhœa, which precedes, he seeks to remove it by means of rice-water, diascordium and opium. Sometimes, indeed, the force is moderated, but it is impossible to prevent the malady from breaking out. After the asphyxia and the blackness have made their appearance, the physician endeavours to warm the patient by external and internal applications. For exterior, hot baths are used, and dry friction with aromatic and stimulating substances, hot bricks and flannel. The skin is irritated and stimulated continually, in the hope of recalling circulation. For the same purpose, hot drinks are internally administered. Some practitioners have no fear of the drinks being too strong. Like the followers of Brown, they give brandy and punch. Others, more timid, make use only of borage, or balm, and, above all, of camomile, which has lately obtained a great credit. After that they give something fortifying, acetate of ammonia, ether, or substances containing alcohol. If the patient experience nausea, opium is sometimes added. When a reaction is produced by these means, which does not always happen, the patient

grows warm ; some hours afterwards, he becomes cold again ; the same methods are again employed, but he grows cold continually. But persons who manage well, hasten to profit by the first appearance of warmth, and send the patient into another hall. Thus I saw, at a boarding school, a number of scholars who had been attacked, warmed again for the moment, and sent home to their parents, where the disease immediately returned. It is possible, however, to maintain this warmth : and when a continued reaction has been obtained, an intense irritation occurs ; less violent, however, than that produced by the hyper-stimulants of the Brownians. Others think that evacuations should be promoted by emetics. As soon as they see the quantity of liquid which inundates the digestive canal, they say, "evacuation must be aided," without reflecting that they will arrive at the absolute exhaustion of the strength, and that the irritation will be augmented. English and Polish physicians have been known to give, alternately, calomel to promote evacuation, and brandy to stimulate. Some cures have resulted from the treatment.

I cannot say what is the proportion of cures effected by these different methods ; it would require many years of research to ascertain. It will perhaps be known at some future day, but at present I can only state to you the most general facts. When, by the means I have spoken of, the patient is revived from his stupor, if these physicians discover much fever, they bleed, either with the lancet or by leeches applied to the epigastrium : then, if the patient be too much weakened by loss of blood, they give him ether or seltz water ; in a word, the medicine is suggested by the symptom.

These results are more favourable than those of Brown's treatment. It is the prevalent method in this capital, and to this we owe a great advantage in the mortality over other countries where the disease has appeared.

We come now to the *physiological treatment*, which we employ. I wish to describe, and, if possible, to justify it. We made, at first, some experiments with hot drinks and stimulants, moved, as we were, by the coldness of the patients : but as these means did not succeed, we abandoned them, and have not recurred to them. I watched the patients carefully ; I gave them, not camomile, for I dared not go so far, but mallows, and similar things. They said to me, "I beg you to give me something cold ; I am tortured by the hot drinks ; I have a terrible burning in the throat, and I beg you to cool it in some way." Their countenance brightened in saying this, but they afterwards fell into a still greater dejection. I concluded, from examining the bodies, and from the confession also of the patients, that stimulants were of no use. I then administered cold drinks ; the patients drank freely, but the evacuations redoubled in consequence. I recollected that ice had been employed to advantage in Germany ; but I only had a vague and

unsatisfactory idea of the manner in which it had been used. It occurred to me to diminish the drinks and give them ice. When the patients had copious evacuations both ways, I caused ice to be given them to eat, with the injunction to swallow it. They took the ice with delight: the tongue was cold, the pulse extinct, and the body chilled. When the tongue is observed to become red, the skin to resume its colour, and the blackness to disappear, the ice may be discontinued and the drinks given; but while the physician is endeavouring to restore the moisture of the mouth and the interior of the body, the gastritis is developed, reaction is going on, the nature of the inflammation is changed, and consists in a rapid congestion towards the digestive canal. The vomitings and stools continue, and the pulse is accelerated; from being slight and hard, it becomes fuller and softer, the brown colour of the skin passes gradually away, and one is surprised, the next day, to see the patient with the signs of commencing inflammation of the stomach and bowels. In the mean time, when he is troubled with thirst you may give him some drinks, which you may be sure he will absorb. The danger is of filling the intestinal canal at the moment it is choaked up. When the asphyxia and blackness have disappeared, and the patient has recovered his strength, you conduct him slowly without stimulus, waiting till he has become slightly cold, and till the tongue, which had become a pale red, but not more pale than when it first grew cold, has recovered its ordinary colour. This is the substance of the treatment for the interior. For the exterior, heat may be applied; it should be directed to the lower extremities. It is not well to accumulate heat upon the breast; the patient cannot support it; they have, on the contrary, a desire to uncover themselves, which seems to aid their respiration, and they derive sensible benefit from it, and express their satisfaction. If, on the other hand, you force them to have the breast covered, if you place them under a blanket or down covering, they appear to suffer extremely, and beg you to uncover the breast a little. The public is still the dupe, in this respect, to prejudices which have been brought from Germany. I will speak here of friction: it is certain that there are establishments at Paris, where the persons employed in rubbing, sweat themselves before they excite any perspiration in the patients. On the contrary, this stimulus only increased the anguish of the sick, and chilled them after the first few moments, by leaving them uncovered. It is not enough to apply cooling substances internally, and heating ones without; the inflammation must be combated; and for this purpose we employ leeches. Bleeding can be rarely resorted to, the blood being every thick and having somewhat the appearance of jelly. Its fluidity may be momentarily restored by rubbing the arm of the patients, or by plunging it into hot water; but all this produces no essential result. In order that the bleeding may be of any use, the patient must be taken in the earliest stages of the disease. I then cause leeches to be applied to the epigastrium and the lower part of the abdomen. The leeches draw

nothing at first, but in proportion as circulation is promoted by the ice, and at the same time by emollient poultices placed upon the abdomen. A quantity of blood is taken by the leeches, so as to aid the cure. You will ask me, perhaps, how the want of ice may be made up? I answer, that nothing is so good as ice. Nevertheless, I think that small draughts of cold water may be of use. Besides this, there are, in almost all places, persons who understand how to produce ice by artificial means, by using oxide of manganese, sulphuric acid, or muriate of soda. Ice must be procured, if possible; but if it cannot be obtained, the want of it must be supplied by taking small quantities of fresh water. Blisters and mustard-seed poultices should be employed afterwards to prevent congestion of the brain. Leeches may be applied with advantage to the temples, and upon the jugular vein; poultices and warm applications of mustard seed should be placed upon the extremities; and hot vapour baths should be used, at the same time applying ice and cold water.

It may be said, perhaps, you are exclusive then. Will you allow us to give neither *Æther* nor Seltz-water to the patients who fall into syncope after bleeding? I beg pardon; I think this may be done; I would have the physician use stimuli when he perceives the pulse of the patient growing weak, provided he has ice in readiness to calm its effect. I have done this myself, and believe it advantageous, and I have done this, though very seldom, in this hospital, since I cannot be here at all moments of the day, nor can I choose my attendants, to watch the patients without interruption. But, in spite of this, I have obtained very remarkable success, since at present we do not lose more than one patient out of thirty or forty, while at first we lost about one out of six. The proportion of cures has been since augmented, because the patients have been brought to us before they had reached the last stages of the disease. Thus, you observe, I do not absolutely reject any system of treatment. Some persons have proposed narcotic glysters with laudanum. I will now express my opinion upon this. In the commencement of the disease, if a stifled sound ensues when you touch the abdomen, this proves that it is not air which prevails in its cavity, but that it is full of the mucous matter of which I have spoken. If, in these circumstances, you administer glysters of rhatany, and other astringent substances, you will produce irritations; the matter will not be detached, but will mount up again; congestion of the brain will ensue, and you will be in danger of witnessing very disagreeable results: this practice must therefore be renounced. But when the patients have been bled, and their evacuations have been abundant, if they continue to experience pain in the lower part of the abdomen; if they are affected with terror, agitation and uneasiness, it is time to administer narcotic glysters. You will then obtain remarkable success, while, if you administer the glysters prematurely, the result will not be satisfactory. As to the quantity of opium, this depends upon the system adopted by the physician. There are some who reject opium and sti-

mulants ; others administer them in large doses. I prescribe but from five to ten drops of laudanum. I have given even forty drops when the patients were very much convulsed, but never any greater quantity. This, then, is the substance of my treatment. I allow no kind of warm drinks. The only time that I think them admissible, is when the patient begins to have an appetite. I then prescribe a cup of soup diluted with water, which revives the patient in an astonishing manner, so that he fancies himself cured. As to the length of time, we have had patients in this hospital, who have remained four or five days in a state of asphyxia and blackness ; we expected, every moment, that they would die, but still they have recovered to the great astonishment of the assistants. We have had instances of the recovery of patients who had become black or dark coloured, and this has been owing to the use of ice and cold drinks.

I now proceed to the treatment at the time of predisposition. When a person, affected with irritability of the digestive canal, sees that the cholera has broken out in the place where he lives, he should commence by diminishing the quantity of his food at least one half. This is called the *prophylactic treatment*. Only a small quantity of vegetables must be eaten : I do not say that they should be entirely given up, but used very sparingly. You should eat eggs, veal, and poultry, and not drink much between meals ; and not at all, unless you are thirsty. Great moderation must be used in this respect. All kinds of uncommon and violent fatigue must be avoided ; and also sexual intercourse, which easily fixes the disease in feeble subjects ; the regular habits of life must be kept up, and not deserted for any invitation, nor upon any occasion. I have known many persons, who, after preserving themselves a long time from the malady, fell into some excess, and were attacked the next day, and some died in a few hours. All persons, or, at least those who have not uncommon courage and firmness of character, should avoid the sight of patients suffering with cholera, as there is something very frightful in the contortions of their countenance ; and one must be accustomed to attend patients, in order to behold, with indifference, so terrible a spectacle. Fruit and milk must be given up ; there are persons, however, who digest milk perfectly, and these need not renounce it. There are others who are constantly disordered by milk, which occasions in them an almost continual diarrhœa ; besides this, there are others who regard coffee and milk as a daily purgative and such persons should abstain from it. I know there are some who say, " If I do not take coffee with milk, I shall have no stool." I answer them, " Give up your coffee and milk, should nothing pass you for a week." All passion must be avoided, as this gives rise to great inconveniences. Above all, a resource against terror must be sought in the moral powers ; for this malady, so terrible when suffered to progress, can, by attacking it in the very commencement, be made one of the least injurious from which human nature suffers. The cholera morbus, in fine, is one of these diseases which best proves

the power of medicine. Had all the physicians in Paris agreed as to the manner of treating it, you would have seen wonders performed, and France would have been distinguished among the nations for effectually arresting the cholera ; but this is impossible ; the idea of uniformity of thought is a chimera, an utopia, to which no reasonable man can yield himself up.

When the disease commences with some precursory symptoms, this is truly the moment of triumph. If a man, who has commonly one stool a day, or every other day, perceive, all at once, a relax in the middle of the night, without cause or motive, and that the evacuation of ordinary matter is followed by a white mucous substance, depend upon it this man is attacked with the first degree of cholera. In this situation, it is very easy to cure him, as I have already ascertained. There are physicians who are satisfied with prescribing brandy, astringents, diascordium, simarouba, and rhatany, with glysters and other things of the kind. They recommend also a diminution of nourishment. But these are only half means. Go at once to your object, cut off the food, apply leeches to the anus if the pain be in the lower part of the abdomen, and to the epigastrium if it be in the stomach. Make free use of the leeches and of ice, and you are sure of success, unless you have to deal with patients whose viscera were previously disordered ; and we must always except such cases. I repeat what I have already told you : it is an eternal truth : if your patients have organic affections of long standing, above all if they be aged, you must not flatter yourselves that a cure will be so easily effected : but when success is possible, you will obtain it. It is much more prudent to impose this regimen upon them, for two or three days, than to give them chicken and rice, with soup. Be severe, and make no change in your prescriptions, for if you authorise three mouthfuls, the patient will be sure to take five, and the whole fruit of your labours will be lost.

This is all, gentlemen, that the actual state of my knowledge, and my ideas on the cholera morbus, allows me to say to you, and I shall be extremely happy if you can derive any advantage from my remarks.

APPENDIX.

(a.) The convulsive catarrh, termed, in Germany, *The Grip*, is closely allied, if not identified, in character with the Influenza; and the observation of M. Broussais, that the Cholera appeared in all the places that had been visited by the slighter Epidemic, has been strikingly confirmed both in England and on this Continent. In France, likewise, although the instances were rare in the hospitals of the Val de Grace, they were sufficiently frequent, in other situations, to establish a similar analogy with respect to the cholera; and thus it may be remarked, in the history of this disease, that the Influenza was its precursor in Europe and America. The severity of the epidemic catarrh, during the last winter, over a wide extent of the territory of the United States, and the presence and progress of malignant cholera at the present time, lend additional force to the assumption, that some connexion, however remote, exists between the two diseases, and that a similar condition of the atmosphere is favourable to their respective developments.

(b.) The mode of attack, through the direct agency of the nervous system, was exemplified in the army of the Marquis of Hastings, at Jubbulpore, in November, 1817. The Cholera appeared at the commencement of the Pindaree war, and destroyed nine thousand people (soldiers and followers of the camp), in twelve days. In innumerable instances, the attack, in its utmost severity, was instantaneous; the sufferers fell as though the nervous power were exhausted at one blow, and rose no more. In Pekin, in the year 1821, the same suddenness of attack was visible; people, engaged in the pursuit of business, were seized without a premonitory symptom, and expired frequently before they could be removed to their dwellings.

(c.) It has been laid down by most of the writers on Cholera, that the absence of the slightest bilious tinge in the evacuations, is one of the strongest proofs of the presence of the disease. Such declarations must, however, according to M. Broussais, be received with caution; he has remarked the colouring of bilious matter in the discharges to the last, and therefore refuses to admit its want, as a positive proof that cholera prevails: "*The Whitish gelatinous particles always recognised in the evacuations,*" afford a more correct test of its existence.

(d.) The observations of M. Broussais are not calculated to explain the rationale of the practice by the English physicians in India, and we therefore, refer to the reports of the Medical Boards in that country, for the following statement:

"The grand objects, recommended by the Medical Boards in India, are, to equalize the distribution of the blood and nervous influence; to counteract the spastic action so common to the irritable diathesis of hot countries, to guard against the danger of congestion in the vital organs, and to restore the natural secretions of the system. The great danger of congestion is guarded against by bleeding; spasm and irritability are opposed by powerful narcotics; whilst full and repeated doses of calomel are admirably calculated to act upon the secretions, and restore them to their proper functions, and especially when united, as is occasionally the case, and, perhaps, always ought to be, with antimonials. All this is accomplished rapidly, and the disease ceases in a few hours. But, if from the violence of the attacks, or from any other cause, it cannot be accomplished, the violence of the disease may not be long resisted, and the patient, in a few hours, or, at the utmost, in two or three days, falls a sacrifice to its fury."

